

WHAT IS CLAIMED IS:

1                   1.       Apparatus for obtaining endoluminal access, the apparatus comprising:  
2                   an elongate body having a working axis and a distal region, the elongate body  
3 configured for insertion within a body lumen; and  
4                   at least one articulating element disposed near or at the distal region of the  
5 elongate body,  
6                   wherein the articulating element is configured to articulate off-axis from the  
7 working axis of the elongate body.

1                   2.       The apparatus of claim 1, wherein the articulating element comprises a  
2 visualization element configured to image within a body lumen.

1                   3.       The apparatus of claim 1, wherein the articulating element comprises  
2 the distal region of a lumen extending through the elongate body.

1                   4.       The apparatus of claim 1, wherein the apparatus has a delivery  
2 configuration in which the articulating element is aligned with or adjacent to the working axis  
3 of the elongate body, and a deployed configuration wherein the articulating element is  
4 articulated off-axis from the working axis of the elongate body.

1                   5.       The apparatus of claim 1, wherein the articulating element further  
2 comprises at least two articulating elements.

1                   6.       The apparatus of claim 5, wherein the at least two articulating elements  
2 are configured for independent off-axis articulation.

1                   7.       The apparatus of claim 5, wherein the at least two articulating elements  
2 are configured for coordinated off-axis articulation.

1                   8.       The apparatus of claim 3, wherein the at least two articulating elements  
2 comprise at least two visualization elements configured to provide stereoscopic visualization.

1                   9.       The apparatus of claim 8, wherein a focal depth of the at least two  
2 visualization elements may be altered by altering a relative angle between the at least two  
3 visualization elements.

1                   10.     The apparatus of claim 2, wherein the visualization element comprises  
2 a fiber optic visualization element.

1                   11.     The apparatus of claim 2, wherein the visualization element comprises  
2 a video chip coupled to a signal-processing unit.

1                   12.     The apparatus of claim 11, wherein the video chip comprises an image  
2 sensor.

1                   13.     The apparatus of claim 12, wherein the image sensor is chosen from  
2 the group consisting of charge coupled device (CCD) image sensors, complementary metal  
3 oxide semiconductor (CMOS) image sensors, multi-layer solid state image sensors, direct  
4 image sensors, and combinations thereof.

1                   14.     The apparatus of claim 2, wherein the visualization element is coupled  
2 to a display unit.

1                   15.     The apparatus of claim 1, wherein the elongate body further defines a  
2 lumen.

1                   16.     The apparatus of claim 15, wherein off-axis articulation of the  
2 articulating element is configured to expose a distal opening of the lumen.

1                   17.     The apparatus of claim 4, wherein the elongate body further defines a  
2 lumen, and wherein a distal opening of the lumen is exposed in the deployed configuration.

1                   18.     The apparatus of claim 17, wherein the distal opening is covered by the  
2 articulating element in the delivery configuration.

1                   19.     The apparatus of claim 1 further comprising a visualization element.

1                   20.     The apparatus of claim 19, wherein off-axis articulation of the  
2 articulating element is configured to expose the visualization element.

1                   21.     The apparatus of claim 2 further comprising a light source configured  
2 to illuminate the interior of the body lumen and facilitate visualization with the visualization  
3 element.

- 1                   22.     The apparatus of claim 15 wherein the elongate body further defines  
2 multiple lumens.
- 1                   23.     The apparatus of claim 1 further comprising a housing configured to  
2 couple the articulating element to the elongate body and to facilitate articulation of the  
3 articulating element.
- 1                   24.     The apparatus of claim 23, wherein the housing comprises at least one  
2 linkage for articulating the articulating element.
- 1                   25.     The apparatus of claim 2, wherein the visualization element comprises  
2 optics.
- 1                   26.     The apparatus of claim 1, wherein the elongate body is steerable.
- 1                   27.     The apparatus of claim 1, wherein the elongate body is rigidizable.
- 1                   28.     The apparatus of claim 1, wherein the articulating element further  
2 comprises a steerable shaft.
- 1                   29.     The apparatus of claim 1, wherein the articulating element further  
2 comprises a diagnostic or therapeutic tool.
- 1                   30.     The apparatus of claim 1 further comprising an atraumatic tip.
- 1                   31.     A method for obtaining endoluminal access, the method comprising:  
2 advancing an elongate body having an articulatable element disposed near or  
3 at a distal region thereof into a body lumen; and  
4 articulating the articulatable element from a position in-line with or adjacent to  
5 a working axis of the elongate body to a position out-of-line with the working axis.
- 1                   32.     The method of claim 31, further comprising imaging within the body  
2 lumen with a visualization element disposed within or upon the articulatable element.
- 1                   33.     The method of claim 32, wherein imaging further comprises imaging  
2 stereoscopically.

1                    34.     The method of claim 31, wherein articulating the articulatable element  
2 comprises exposing a distal opening of at least one lumen defined within the elongate body.

1                    35.     The method of claim 34 further comprising advancing a tool through  
2 the lumen.

1                    36.     The method of claim 34 further comprising injecting or withdrawing a  
2 fluid through the lumen.

1                    37.     The method of claim 31, wherein articulating the articulatable element  
2 further comprises expanding the articulatable element from a reduced delivery configuration  
3 to an expanded deployed configuration.

1                    38.     The method of claim 31 further comprising repositioning the  
2 articulating element in-line with or adjacent to the working axis of the elongate body.

1                    39.     The method of claim 38 further comprising removing the elongate  
2 body from the body lumen.

1                    40.     The method of claim 38 further comprising manipulating the elongate  
2 body and re-articulating the articulatable element out-of-line with the working axis.

1                    41.     The method of claim 33, further comprising altering a focal depth  
2 during stereoscopic imaging.

1                    42.     The method of claim 31 further comprising steering the elongate body  
2 within the body lumen.

1                    43.     The method of claim 31 further comprising rigidizing the elongate  
2 body within the body lumen.

1                    44.     Apparatus for obtaining endoluminal access, the apparatus comprising:  
2 a steerable guide having a working axis, at least one lumen and a distal region,  
3 the guide configured for insertion within the body lumen; and  
4 an articulating element disposed near the distal region of the steerable guide,  
5 wherein the articulating element is configured to articulate off-axis from the  
6 working axis of the elongate body.

1                   45.     The apparatus of claim 44, wherein the steerable guide is configured to  
2     steer the articulating element within the body lumen to facilitate access to regions of interest  
3     within the body lumen.

1                   46.     The apparatus of claim 44, wherein the articulating element comprises  
2     a distal region of the lumen.

1                   47.     The apparatus of claim 44, wherein the articulating element comprises  
2     a visualization element.

1                   48.     The apparatus of claim 44, wherein the articulating element further  
2     comprises a steerable shaft.

1                   49.     The apparatus of claim 44, wherein the articulating element comprises  
2     a diagnostic or therapeutic tool.

1                   50.     The apparatus of claim 44 further comprising an atraumatic tip.